SUPPLEMENTAL

ENVIRONMENTAL ASSESSMENT

FOR AN

EMERGENCY RULE EXTENSION

TO IMPLEMENT MANAGEMENT MEASURES IN THE ATLANTIC SHARK FISHERIES CONSISTENT WITH THE 2002 STOCK ASSESSMENTS

United States Department of Commerce
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
Highly Migratory Species Management Division

May 2003

Emergency Rule Extension to Implement Management Measures in the Atlantic Shark Fisheries Consistent with the 2002 Stock Assessments

Actions: Extend a December 27, 2002, emergency rule (67 FR 78990) that: implemented annual quotas of 783 metric tons (mt) dressed weight (dw) and 931 mt dw for the commercial ridgeback and non-ridgeback large coastal shark (LCS) fisheries, respectively; implemented an annual quota of 326 mt dw for the commercial small coastal shark (SCS) fishery; suspended the regulation regarding the commercial ridgeback large coastal shark minimum size; established the regulations on season-specific quota adjustments; and established counting dead discards and state landings after a Federal closure against the commercial quotas.

Type of Statement: Supplemental Environmental Assessment

Lead Agency: National Marine Fisheries Service

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Abstract: This document is provided to supplement and correct information provided in the Environmental Assessment and Regulatory Impact Review that was prepared for the original emergency rule (December 27, 2002, 67 FR 78990). This document is not intended to replace the original Environmental Assessment.

FINDING OF NO SIGNIFICANT ENVIRONMENTAL IMPACT

The Highly Migratory Species Management Division of the Office of Sustainable Fisheries submits a supplemental Environmental Assessment (EA) and the attached original EA for the Atlantic shark fisheries for Secretarial review under the procedures of the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). The original EA was developed as an integrated document that included a Regulatory Impact Review. The supplemental EA corrects some errors in the original EA and clarifies one of the alternatives. Copies of the original EA and Regulatory Impact Review and the supplemental EA are available at the following address:

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or

http://www.nmfs.noaa.gov/sfa/hmspg.html

The action extends an emergency rule that:

- Set annual quotas of 783 metric tons (mt) dressed weight (dw) and 931 mt dw for the commercial ridgeback and non-ridgeback large coastal shark (LCS) fisheries, respectively;
- Set an annual quota of 326 mt dw for the commercial small coastal shark (SCS) fishery;
- Suspended the regulation regarding the ridgeback LCS minimum size;
- Established of the regulations on season-specific quota adjustments; and,
- Established of the regulation counting dead discards and state landings after a Federal closure against the commercial quotas.

Having reviewed the original EA and supplemental EA, I have determined that this action would not have a significant impact on the quality of the human environment, thus preparation of an Environmental Impact Statement on the action is not required by Section 102(2)(c) of the National Environmental Policy Act or its implementing regulations.

Approved: Rebecca Lent for
William T. Hogarth, Ph.D.
Assistant Administrator for Fisheries, NOAA

May 21, 2003
Date

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1.0. PURPOSE AND NEED FOR ACTION

The purpose and need of the emergency rule (December 27, 2002, 67 FR 78990) are fully described in the supporting Environmental Assessment (EA) and Regulatory Impact Review and are not repeated here. However, during the comment period for the emergency rule some commenters noted a few errors in the original EA and had questions regarding some of the alternatives. This document corrects those errors and clarifies the alternative in question. Responses to the comments received during the comment period are included in the emergency rule extension that will be published in the Federal Register and in Appendix 1 of this document.

Additionally, since the release of the original EA, the National Marine Fisheries Service (NOAA Fisheries) has reviewed the peer reviews of the 2002 large coastal shark (LCS) stock assessment. This document provides a brief summary of the peer reviews.

After reviewing the comments received and the peer reviews of the 2002 LCS stock assessment, NOAA Fisheries has determined that no change to the preferred alternatives of the original EA (attached as Appendix 2) or to the emergency rule regulations is needed. This supplemental EA is provided to supplement and clarify statements made in the original EA and is not intended to replace the original EA.

2.0 CORRECTIONS AND CLARIFICATIONS TO THE ORIGINAL EA

This section corrects errors made in the original EA and clarifies Alternative D1.

Section 2.1, Alternative A4

The second to last sentence on page 6 under Alternative A4 states that, "According to the 2002 LCS stock assessment, the LCS complex is overfished and a 50 percent reduction in the LCS harvest level has a greater than 65 percent chance of rebuilding the complex in 30 years." The sentence should read, "According to the 2002 LCS stock assessment, the LCS complex is overfished and a 50 percent reduction in the LCS harvest level has on average a greater than 65 percent chance of increasing the biomass in 10, 20, and 30 years and a 50 percent or greater chance of increasing biomass above MSY in 10, 20, and 30 years."

Section 2.1, Alternative A5

The first sentence of the second paragraph pertaining to Alternative A5 states that, "According to the 2002 LCS stock assessment, maintaining the harvest level for the sandbar shark, the major ridgeback LCS landed, has a greater than 70 percent chance of rebuilding sandbar sharks to optimum yield in 10 years." The sentence should read, "According to the 2002 LCS stock assessment, maintaining the harvest level for the sandbar shark, the major ridgeback LCS landed, has on average a greater than 70 percent chance of increasing biomass levels in 10, 20, and 30 years and a greater than 50 percent chance of maintaining biomass levels above MSY in 10, 20, and 30 years."

Additionally, NOAA Fisheries would like to add that the 2002 LCS stock assessment says that, "even an increase of 1.5 times the 2000 [sandbar] catch could result in approximately a 50 percent probability on average that the biomass in 2010, 2020, or 2030 would be above the biomass at MSY."

The second sentence of the second paragraph pertaining to Alternative A5 states that, "Also, according to the 2002 LCS stock assessment, increasing the harvest level of blacktip sharks, the major non-ridgeback LCS landed, by 20 percent has a greater than 75 percent probability of increasing blacktip biomass." The sentence should read, "Also, according to the 2002 LCS stock assessment, increasing the harvest level of blacktip sharks, the major non-ridgeback LCS landed, by 20 percent has on average a greater than 50 percent probability of maintaining blacktip biomass above MSY in 10, 20, and 30 years."

Table 2.2

The Alternatives A1 through A5 in Table 2.2 were incorrect and did not correspond to the Alternatives A1 through A5 in the text. The corrected table is below.

Table 2.2 Process for calculating LCS annual quota alternatives.

Alternative	LCS Complex	Ridgeback LCS	Non-Ridgeback LCS
A1 (Final Action)	NA	+ 634.5 mt dw (sandbar 3 year average, Table 2.1) + 138.3 mt dw (50% of 3 year average of unclassified sharks, Table 2.1) + 10.5 mt dw (50% subtraction of other ridgeback species 3 year average) **= 783 mt dw**	+ 616.6 mt dw (blacktip and spinner 3 year average, Table 2.1) + 123.3 mt dw (20% addition of blacktip and spinner 3 year average) + 138.3 mt dw (50% of 3 year average of unclassified sharks, Table 2.1) + 27.7 mt dw (20% addition of 138.3 mt dw of unclassified sharks) + 25 mt dw (50% subtraction of other non-ridgeback species 3 year average) **= 931 mt dw**
A2	NA	See HMS FMP **= 620 mt dw**	See HMS FMP **= 196 mt dw**
A3	50% of 2,570 mt dw (1996 quota level) **= 1,285 mt dw**	NA	NA
A4	50% of 1,692.7 (3 year average, Table 2.1) **= 846 mt dw**	NA	NA
A5	NA	+793 mt dw (3 year ridgeback average, Table 2.1) = **793 mt dw**	+ 805 mt dw (3 year non-ridgeback average, Table 2.1) + 161 mt dw (20% addition of 3 year average, Table 2.1) **= 966 mt dw**

Section 5.4, Accounting for all Fishing Mortality

One commenter correctly noted that the estimates of small coastal shark (SCS) bycatch in the shrimp trawl fishery provided in the original EA (0.6 to 1.1 mt dw from 1998 to 2000) were incorrect and that the actual estimates of SCS bycatch in the shrimp trawl fishery exceed the quota for SCS established in the EA. According to the 2002 SCS stock assessment, the estimates of SCS bycatch in the shrimp trawl fishery is actually 1,257,000 to 2,410,000 lb dw or 570 to 1,093 mt dw from 1998 to 2000. Accordingly, this supplemental EA revises the last sentence in the first paragraph under *Ecological Impacts* with the numbers noted above.

Additionally, a number of commenters noted confusion over how Alternative D1 would be implemented. Accordingly, NOAA Fisheries notes that the final action to count dead discards of sharks against the commercial quota (Alternative D1), as implemented in the Fishery Management Plan for Atlantic Tunas, Swordfish, and Sharks (HMS FMP; pages 3-104 to 3-

107)) was not intended to apply to bycatch in non-HMS fisheries. Rather, the alternative was intended to apply to discards to account for incidental catch by fishermen who hold HMS permits. The following paragraph is taken from the description of the final action in the HMS FMP:

> This action will account for all sources of mortality in assessing an annual harvest level and will reduce that available quota by the amount of shark discarded dead and the amount harvested in state waters after Federal fishery closures, consistent with the approach described in the introduction of Section 3.1.1. For LCS, observer data indicate that approximately ten percent of LCS caught in the directed shark fishery are discarded dead, which accounts for about 3.5 to 5.5 percent of total LCS mortality. The pelagic longline fishery, which encounters LCS incidental to other fishing operations, is estimated to account for about 1.5 to four percent of total LCS mortality. Estimates of the pelagic sharks discarded dead in the tuna and swordfish longline fisheries range from approximately 300 to 1,200 mt whole weight (ww) between 1987 and 1997 (about 9,000 to 30,000 fish; see discussion in Chapter 2), of which approximately 62 to 95 percent is blue sharks. Thus, estimates of dead discards of pelagic sharks have ranged from 27 to 103 percent of the commercial pelagic shark quota (for years when a quota was established), with blue shark dead discards comprising from 19 to 98 percent of the quota. When blue sharks are not included, the estimate of dead discards of pelagic sharks has ranged from eight to 20 percent of the pelagic shark quota. For SCS, observer data indicate that about 99 percent of SCS caught are either landed or used for bait, such that dead discards would be negligible. However, additional measures such as increasing observer coverage to obtain better estimates of cryptic mortality or requiring fishermen to report the catch and disposition of all SCS (not just SCS landings) may be warranted to address this issue.

Thus, even though discards of SCS in the shrimp trawl fishery exceed the SCS quota, these discards will not be counted against the SCS quota. Additionally, these discards were not considered when setting the quota. As described in section 5.3 of the original EA (Appendix 2), the quotas set in the emergency rule were based on the average landings reported by fishermen. Discards by fishermen in non-HMS fisheries and in HMS fisheries are, and will continue to be, included in the stock assessments in terms of the total catch levels used to estimate the maximum sustainable yield and current fishing mortality levels. NOAA Fisheries is considering management measures in Amendment 1 to reduce bycatch in HMS fisheries and will work with the appropriate Fishery Management Council to reduce shark bycatch in non-HMS fisheries.

3.0 THE PEER REVIEW OF THE 2002 LCS STOCK ASSESSMENT

NOAA Fisheries announced the availability of the LCS stock assessment on October 17, 2002 (67 FR 64098). At that time, NOAA Fisheries submitted the stock assessment and the related documents to Natural Resources Consultants, Inc. (NRC) to be independently reviewed per the peer review process outlined in the settlement agreement with Southern Offshore Fishing Association *et al* (SOFA). NRC selected three independent parties to conduct the peer review: Dr. Terry Quinn II, Dr. Kim Holland, and Dr. Dayton L. Alverson. The names of the reviewers were not disclosed to NOAA Fisheries, SOFA, or the public until the review was complete. The entire peer review process was completed on December 20, 2002, after the emergency rule and its accompanying documents was finalized. Copies of the peer reviews are available on the web at http://www.nmfs.noaa.gov/sfa/hmspg.html or by contacting Karyl Brewster-Geisz at (301) 713-2347.

Overall, the peer reviews concluded that the models and methodology used in the 2002 LCS stock assessment were appropriate. Thus, the peer reviews reaffirmed NOAA Fisheries determination that the 2002 LCS stock assessment constitutes the best available science. Because the peer reviews do not find any fundamental errors or flaws in the 2002 LCS stock assessment, the results of the peer reviews did not change NOAA Fisheries' decision to implement the management measures in emergency rule. The peer reviews will also be considered in Amendment 1 to the HMS FMP.

The executive summaries of the three reviewers, as submitted to NOAA Fisheries, are below.

Executive Summary of Dr. Quinn II:

> My review of the 2002 assessment of large coastal sharks suggests that a state-of-the-art was performed using the best scientific information available. Alternative datasets were constructed for catch to represent the uncertainties in the data. Several indices of abundance were compiled and used in the assessment with two weighting systems. Six alternative stock assessment models were evaluated, and five of these were used in the stock assessment document. Alternative harvest policies from no catch to 150% of the year 2000 catch were contrasted, and management implications were discussed.
>
> The stock assessment results show that there is great uncertainty in estimates of abundance, fishing mortality, and management parameters such as MSY. This difficulty can be traced to and high variability, uncertainty, and conflicting information in the data. The stock assessment wisely uses Bayesian analyses to provide an objective, albeit uncertain, assessment of stock status.
>
> The stock assessment concludes that the condition of sandbar and blacktip sharks is good. Using "inference by subtraction", it concludes that there is no evidence that some species in the LCS complex may be in a poor condition. The declines in some of the indices of abundance since the 1970s and 1980s mean that these results from the assessment of the LCS complex may actually be valid. The problem is that the stock

assessment did not examine individual species to see where the problems may lie. Whether there is sufficient information on which to take management action depends on the level of risk one is willing to accept. There is neither positive proof of an effect on the complex nor positive proof of no effect. It should be noted that many shark species have low productivity and are long-lived, so that failure to take action could result in long-term depletion of some species.

Improvements to the assessment can be made in the future. Further investigation of indices should be undertaken. Assessments should be done for more species or species groups in the LCS complex. Further investigation of age and age-sex-area models should occur. Investigation of alternative and robust harvest policies in contrast to the current constant-catch policy should occur in the future.

Executive Summary of Dr. Holland:

This review covers material (methods, results and recommendations) contained in both the 2002 Shark Evaluation Workshop Report (SEW) and the subsequent 2002 Stock Assessment (SA). The evaluation was based on a careful review of these documents and the accompanying background literature. In addressing specific items contained within the Scope of Work, particular emphasis was placed on evaluating the way in which the 2002 SEW and 2002 SA responded to the recommendations of previous independent reviews of the 1998 SEW.

I find the 2002 SEW to be a good faith effort by NMFS to address the various criticisms and concerns that were raised regarding the methods, results and recommendations of 1998 SEW. The scope of work of the various 2002 SEW working groups represented a logical approach to providing the best available scientific data for the various analyses and their subsequent interpretation. The current analyses incorporated several substantive changes or additions to those of the 1998 SEW. Many of these changes were in accord with the suggestions of previous reviewers and included age-structured models, models that consider delayed recruitment of animals into the fishery and models that attempt to capture the potential differences in responses to exploitation of open versus closed populations, among others. Recently acquired biological data (e.g., juvenile survival rates) were incorporated into the analyses. Also, considerable effort was expended in trying to reconstruct historical catch rates to provide longer time series. As suggested by reviewers of the 1998 SEW, sensitivity analyses were applied to the results of the various models. In the 2002 iteration, the weighting and importance functions are explicitly described as are the other criteria used for evaluating which results make ‘more sense’ than others do. As suggested by commercial shark fishing interests, estimates of the Mexican catch were incorporated into the models.

The 2002 SEW and the Stock Assessment are scientifically rigorous bodies of work. These exhaustive attempts to include the multiplicity of recommendations from previous reviews are almost self-defeating; so many permutations were considered that the assessment document is cumbersome and difficult to digest. Fortunately (or

unfortunately), there is an overwhelming consistency to the results; the LCS resources of the Western Atlantic and Gulf of Mexico have been exploited beyond sustainable rates and populations are at or below levels required to sustain MSY. Recent management restrictions may have halted the decline in these stocks but current exploitation rates will not stabilize them at (or allow them to rebuild to) MSY levels. These results are consistent with the results of the 1998 SEW. The reliability of the models and their pertinence to stock management continue to be impacted by the paucity of historical catch data and uncertainty about the reliability of certain data sources. However, I find that the catch levels recommended in the 2002 Stock Assessment follow logically from the results that were presented in the document especially when viewed in light of the Precautionary Approach to resource management. To improve future stock assessments, NMFS should support on-board observer programs and programs (e.g., VIMS, Mote, NMFS-Mississippi) that acquire fishery independent estimates of abundance. Movement and habitat utilization research should be high priorities.

Executive Summary of Dr. Alverson:

The author found some difficulty in relating the work of the SEW to the subsequent major stock assessment document undertaken by the NMFS and it was not always clear whether NMFS had followed the suggestions of the SEW in regard to procedures and recommended mixing rates between the U.S. and Mexico stocks and other potential out migrations. Nevertheless, in my opinion, the works of the 2002 SEW and the NMFS are highly professional in character, management recommendations contained in the 2002 SEW and NMFS (Sept.) documents are based on appropriate fisheries stock assessment techniques and that the scientist based their conclusions on relevant available science. The major effort of the 2002 SEW and NMFS efforts were dedicated to responding to comments made by independent scientists regarding the information base, the need to standardize data sets, underlying assumptions used and the legitimacy and nature of the models employed. In this regard the SEW/NMFS scientists have undertaken an exhaustive effort to organize and reassemble the catch data to include information on catches in Mexico and bycatch mortality, standardize data sets and extended the modeling to include age dependent data and open populations. In addition, a range of statistical methods has been employed to evaluate the model's sensitivity to different inputs and to examine model performance. These efforts demonstrate a very real commitment to respond to earlier identified problems noted by industry and outside reviewers. In my view, the SEW/NMFS scientists provide a range of projections upon which managers can precede with appropriate measures to maintain the sustainability of the LCS resources. Since the comments on the status of stocks and the need for potential management actions is only found in the NMFS document it is not clear how the SEW members have or would have responded to the NMFS generic management comments. This reviewer is in general agreement with the findings and recommendations of the SEW/NMFS 2002 reports.

In the future, work of the SEW should be completed at the time of the meeting of the selected SEW scientists and not dependent on work subsequently done outside the SEW by any party. It is suggested that over the next several years the scientists concentrate on improving life history, taxonomic and behavioral aspects of important LCSs. Some attempt to examine open and closed populations should consider the probability of recovery. In the LCS group, reductions in the TAC of species other than sandbar and blacktip sharks should be considered, as proposed by the NMFS. For sandbar and other sharks further reductions in fishing related mortalities should be achieved through the decrease of bycatch mortality and/or increasing the survival of sharks caught as bycatch in non-target fisheries. The possibility of increasing the catch of blacktip sharks should be carefully examined. Considering the uncertainty in some of the CPUE indices, perhaps the TAC should remain unchanged and the trend in the population reviewed over the next several years.

4.0 CONSIDERATION OF NOAA AND CEQ SIGNIFICANCE CRITERIA

NOAA Administrative Order 216-6 (NAO 216-6) identifies nine criteria, in addition to the Council on Environmental Quality's (CEQ) regulations at 40 C.F.R. § 1508.27, for determining the significance of the impacts of an action for purposes of NEPA. For the original EA (Appendix 2) and this document, the NAO 216-6 and CEQ criteria are addressed as follows:

1. *Can the action be reasonably expected to jeopardize the sustainability of any target species that may be affected by the action?*

The action is not expected to jeopardize the sustainability of LCS or SCS, which are the target species affected by the action. The action facilitates the rebuilding and maintaining of shark stocks and is not expected to result in a change to fishing practices, effort, or shark landings. Suspending the LCS ridgeback minimum size may result in continued landings of smaller sharks, but also would not increase dead discards. The preferred SCS quota will cap current landings to minimize potential impacts to finetooth sharks pending completion of an FMP amendment.

2. *Can the action be reasonably expected to jeopardize the sustainability of any non-target species?*

The action is not expected to jeopardize the sustainability of any non-target finfish species. Finfish bycatch for the bottom longline fishery includes, in order of occurrence, snappers/groupers, red drum, cobia/dolphin, catfish, eel, barracuda, tuna/swordfish, and jacks. According to the HMS FMP, finfish bycatch was only approximately 3.2 percent of the catch in the bottom longline fishery. In the shark drift gillnet fishery, bycatch includes king mackerel, little tunny, cownose ray, crevalle jack, cobia, spotted eagle ray, great barracuda, tarpon, Atlantic stingray, and Spanish mackerel and accounts for approximately 7.4 percent of the catch (Carlson 2001). Because the action will not result in a change in fishing effort or practices, NOAA Fisheries does not expect that sustainability of these bycatch species will be jeopardized by the action.

3. *Can the action be reasonably expected to allow substantial damage to the ocean and coastal habitats and/or essential fish habitat (EFH) as defined under the Magnuson-Stevens Act and identified in FMPs?*

Because this action is not expected to change fishing practices or effort, this action is not expected to change the impact on EFH or to allow substantial damage to ocean and coastal habitats and/or EFH. The action would affect fishermen who hold commercial shark limited access permits fishing in state waters, the U.S. exclusive economic zone (EEZ), or the high seas. As described in the HMS FMP, because bottom longline does touch the bottom substrate, the gear could become hung or entangled on various elements of the substrate and could alter the habitat for prey species. However, bottom longline gear is not likely to cause substantial damage. As described in the HMS FMP,

NOAA Fisheries recommends fishermen take appropriate measures to identify and avoid such bottom obstructions in order to mitigate any adverse impacts. The other gear types used to target sharks are unlikely to have any impact on essential fish habitat.

4. *Can the action be reasonably expected to have a substantial adverse impact on public health and safety?*

The action is not expected to have substantial adverse impacts on public health and safety. The action of suspending a minimum size requirement will have a positive safety impact, because fishermen would not have to fish as far offshore to avoid smaller sharks. The actions of increasing the LCS annual quota slightly might have a positive safety impact because the season could be longer, thus further minimizing the "race for the fish."

5. *Can the action be reasonably expected to have an adverse impact on endangered or threatened species, marine mammals, or critical habitat of these species?*

Impacts of fishing for LCS and SCS were considered in a June 2001 Biological Opinion issued under section 7 of the Endangered Species Act. The action is not expected to alter fishing practices or fishing effort and will not have any impacts not previously considered on endangered or threatened species, marine mammals, or critical habitat of these species. While the preferred LCS quota would increase the quota that is currently in place, it will not result in increased fishing effort or changes in fishing practices, as the quota falls within the range of average LCS landings for all commercial fishermen from 1999 to 2001. Thus, no increased interactions with or impacts to critical habitat of sea turtles or other protected species is anticipated.

In light of the recent listing of smalltooth sawfish (68 FR 15674, April 1, 2003), the Office of Sustainable Fisheries is examining the number of sawfish observed caught in the shark fisheries and, if appropriate, will examine options to reduce smalltooth sawfish bycatch in an amendment to the HMS FMP. At this time, the Office of Sustainable Fisheries is aware of four smalltooth sawfish being observed caught in the shark bottom longline fishery. Three of these sawfish were released alive (1997, 1999, and 2002). The disposition of the fourth is unknown (1996). Three of the sawfish were observed in eastern Gulf of Mexico while the fourth was observed in the South Atlantic region. No smalltooth sawfish have been observed caught in the southeast shark gillnet fishery.

6. *Can the action be reasonably expected to result in cumulative adverse effects that could have a substantial effect on the target species or non-target species?*

The action is not expected to result in cumulative adverse effects that could have a substantial effect on target species or non-target species. Based on the results of the 2002 stock assessments for LCS and SCS, under past and present management measures, some shark stocks continue to be overfished but are rebuilding, some shark stocks are fully rebuilt, and some shark stocks are fished sustainably. While the 2002

SCS stock assessment does indicate that overfishing is occurring on finetooth sharks, the biomass of the stock is still above the level at which it would be considered overfished. The preferred measures should maintain current stock status levels until rebuilding plans are implemented. In all, the final actions would continue to facilitate rebuilding of the stocks without adverse economic or social impacts pending an amendment to the HMS FMP.

7. *Can the action be reasonably expected to have a substantial impact on biodiversity and ecosystem function within the affected area (e.g., benthic productivity, predator-prey relationships, etc.)?*

The action is not expected to have a substantial impact on biodiversity and ecosystem function within the affected area, because the action is not expected to change fishing activity or practices, landings of target species, and interactions with non-target and endangered or threatened species.

8. *Are significant social or economic impacts interrelated with significant natural or physical environmental effects?*

The final actions are not expected to have any significant, positive or negative, social or economic impacts. Over the long term, the preferred LCS quota may have some minor positive economic and social impacts. The final action of suspending a minimum size requirement will have a positive social impact, because fishermen would not have to fish as far offshore to avoid smaller sharks.

9. *To what degree are the effects on the quality of the human environment expected to be highly controversial?*

Although there has been litigation over prior shark-related management actions, the action does not have controversial or significant effects on the human environment. As noted above, the alternatives would not result in changes in fishing activity, effort, or shark landings, and would have no significant ecological, economic, and social impacts. There are no effects on the human environment that are highly uncertain or that involve unique or unknown risks. In addition, the final actions do not establish new precedence. They consider management techniques that have been in use in this and different fisheries for a number of years. The action would not have an impact on State or local regulations outside the EEZ, and would not negatively impact other laws applicable to the EEZ.

APPENDIX 1

COMMENTS RECEIVED ON THE EMERGENCY RULE AND NOAA FISHERIES' RESPONSES

NOAA Fisheries conducted four public hearings on the emergency rule (68 FR 1024, January 8, 2003) and received many written and oral comments over a 50 day comment period. In addition, HMS Advisory Panel members provided NOAA Fisheries with comments specific to the shark emergency rule at a meeting in Silver Spring, Maryland on February 10-12, 2003. Comments were submitted by recreational and commercial fishing organizations, state agencies, conservation groups, and the general public. The following is a summary of the major comments together with NOAA Fisheries' responses. The comments are arranged by topic similar to the organizational structure of the EA/RIR.

LCS Commercial Annual Quota

Comment 1: The LCS quota established by the December 27, 2002, emergency rule is 2 million pounds dw less than the 1996 quota. The 1996 quota level would be available now if NOAA Fisheries had assessed certain species of shark such as bull, dusky, silky, spinner, three species of hammerheads, and tiger. This is especially true given that dusky and tiger sharks, in particular, have shown large increases in catch lately.
Response: The status of the LCS stock and the quota set in the emergency rule are based on the results of the 2002 LCS stock assessment which represents the best available science. The stock assessment was conducted for individual species for which there was sufficient information and for the complex as a whole to account for other species. The information from the stock assessment on the LCS complex as a whole indicates the LCS complex is overfished and that overfishing is occurring. This result does not warrant an increase in quotas for the species mentioned. Information may be available to conduct a stock assessment on dusky sharks in the future.

Comment 2: The NOAA Fisheries EA/RIR failed to describe which models were used to arrive at the quota levels. The EA/RIR did not provide the justification for choosing certain models. Additionally, NOAA Fisheries did not acknowledge that uncertainty levels are high. NOAA Fisheries should establish formal criteria for selecting appropriate models for determining quotas prior to completion of the stock assessment and not after. Also, NOAA Fisheries should consider incorporating formal decision analysis techniques as part of the stock assessment.
Response: NOAA Fisheries relied on overall conclusions and findings of the stock assessment to determine quota levels consistent with the status of stocks. Similarly, determinations as to whether a stock is overfished or whether overfishing is occurring are based on the overall conclusions and findings of the stock assessment. The conclusions and findings of the stock assessment are based on balancing the results of all models, the appropriate application of the models, the sensitivity of the models to the data, and the convergence of the models. NOAA Fisheries will consider formally identifying the criteria used to balance the results of the models in advance of the next stock assessment.

Comment 3: Increasing the LCS quota was unjustified and could result in an increase in effort, which in turn, could result in an increase in bycatch of sharks and protected species.
Response: NOAA Fisheries set the ridgeback quota on a slightly reduced level from the average ridgeback harvest, based on average landings of each species, as a precautionary measure to ensure the species in the ridgeback LCS group, other than sandbar sharks, do not decline further. A similar process was followed to ensure that the non-ridgeback LCS, other than blacktip and spinners, do not decline further. The addition of 20 percent to the blacktip portion of the non-ridgeback quota level corresponds to the lower end of the increase suggested for blacktip sharks by the 2002 LCS stock assessment. NOAA Fisheries does not expect the LCS quotas established in the emergency rule to result in increased fishing effort. From 1999 to 2001, the average LCS landings for all fishermen, including fishermen fishing in state waters, has been 1,693 mt dw and has ranged from 1,616 to 1,778 mt dw. The total ridgeback and non-ridgeback quota under the emergency rule is within this range of recent landings at 1,714 mt dw. Under this landings level, the stock assessment found that the status of the LCS complex as a whole has improved since 1998. Because a number of states now close state waters with the closure of federal waters, because state landings are considered in LCS quota monitoring, and because federal permits are under a limited access system, NOAA Fisheries does not expect an increase in LCS landings or effort or an increase in non-target finfish or protected species impacts.

Comment 4: The LCS quota appears to be appropriate and does not pose significant risk to the continued rebuilding of the sandbar shark or the LCS complex. Additionally, experience shows that fishermen can target and produce catches that are largely dominated by blacktip sharks.
Response: NOAA Fisheries agrees. As described in response to comment 2, NOAA Fisheries believes the quotas are appropriate.

Commercial LCS Size Limits

Comment 1: The method of measuring ridgeback sharks described in the final rule for the HMS FMP (64 FR 29090, May 28, 1999) will not work properly.
Response: This extension to the emergency rule suspends the minimum size requirement. NOAA Fisheries will re-consider this comment when developing management alternatives for Amendment 1 to the HMS FMP.

Comment 2: NOAA Fisheries should provide an explanation as to why the ridgeback minimum size was lifted.
Response: The ridgeback minimum size requirement was finalized in the 1999 HMS FMP based in part on the status of sandbar sharks according to the 1998 LCS stock assessment. Due to a lawsuit by the commercial fishing industry, the regulation was never implemented. In 2002, NOAA Fisheries conducted another LCS stock assessment that found that sandbar sharks were no longer overfished. Given that sandbar sharks are rebuilding without a minimum size requirement and given that implementation of a

minimum size requirement can increase discards of sandbar and other sharks, NOAA Fisheries believes that implementation of a minimum size could slow rebuilding of sandbar sharks and other LCS. NOAA Fisheries will re-examine in Amendment 1 to the HMS FMP the implications, including those regarding dead discard, of implementing the minimum size in the commercial fishery.

SCS Commercial Annual Quota

Comment 1: The SCS quota should not have been reduced because the assessment for finetooth sharks was incomplete and NOAA Fisheries needs to gather more information about this species.
Response: A stock assessment for SCS was completed in 2002. This stock assessment examined all SCS individually and as a whole complex and found that overfishing is occurring on finetooth sharks. While the stock assessment states that findings for finetooth sharks should be regarded more cautiously from the results for some of the other species because it used shorter catch-per-unit-effort series and it lacked some bycatch estimates and catches in some years, the results of the stock assessment are still considered the best available science and NOAA Fisheries must manage the fishery accordingly. In Amendment 1 to the HMS FMP, NOAA Fisheries plans to examine the available information for finetooth and other SCS to determine the sources of fishing mortality and consider other alternatives, such as time/area closures, that may reduce fishing effort on finetooth sharks while minimizing impacts on the SCS fishery.

Comment 2: Because finetooth, blacknose, and bonnethead may not be legally taken by recreational fishermen in federal or state waters because they do not reach the 4.5 foot FL size limit, commercial fishermen should be allowed to land more.
Response: The SCS quota capped landings at the highest level of landings by commercial fishermen, including fishermen fishing in state waters. This quota cap was implemented to ensure fishing effort did not increase on finetooth sharks pending Amendment 1 to the HMS FMP.

Comment 3: NOAA Fisheries estimates of shark bycatch in the shrimp trawl fleet would exceed the annual quota for SCS.
Response: NOAA Fisheries acknowledges the incorrect estimates provided in the EA/RIR and clarifies in this emergency rule extension that only dead discards from HMS fisheries will be counted against the federal commercial SCS quota. Bycatch and discards in non-HMS fisheries are considered in the stock assessment. NOAA Fisheries will work with the appropriate management body to minimize shark bycatch in those fisheries, to the extent practicable.

Accounting for all Fishing Mortality

Comment 1: Dead discards should not be counted against future shark quotas. The number of dead discards should only be used in stock assessments that set quotas, in order to prevent confusion among fishermen.

Response: Dead discards are used in stock assessments to determine the current level of fishing mortality and the status of the stocks. The stock assessment does not set the quota; instead the stock assessment provides estimates on the current rate of fishing mortality, the current biomass level, the rate of fishing mortality that the stock may be able to withstand, and the biomass level that could support maximum sustainable yield. From those estimates, NOAA Fisheries can calculate a total allowable catch level. The quota level set in this emergency rule should be considered a commercial total allowable catch, including all state and federal landings and dead discards in HMS fisheries. NOAA Fisheries is considering other methods for setting commercial landings quotas in Amendment 1 to the HMS FMP.

Comment 2: NOAA Fisheries should be commended for including state landings and dead discards in the quota. However, NOAA Fisheries has not demonstrated that raising the quota to account for state landings and discards will not increase landings further.
Response: The LCS ridgeback and non-ridgeback quotas in the emergency rule are based on average landings from 1999 to 2001 including landings after federal closures. Any state landings and dead discards by HMS fishermen will be counted against the federal commercial quota. Additionally, if the catch quota is exceeded, the quota for the following year will be reduced. Similarly, dead discards will also reduce the quota in future years. Thus, overall landings should not increase. As described above, because a number of states now close state waters with the closure of federal waters, because state landings are considered in LCS quota monitoring, and because federal permits are under a limited access system, NOAA Fisheries does not expect an increase in LCS landings or effort or an increase in non-target finfish or protected species impacts.

Comment 3: NOAA Fisheries should explain why accounting for dead discards will not take effect until 2005.
Response: There is a time lag between the season closure dates and when all final landings are reported, entered into a database, and checked for quality control. Logbook data being reported in 2003 will not be fully entered and checked until late spring/early summer 2004. At that time, NOAA Fisheries will attempt to verify logbook data with dealer and observer reports. However, the actual amount of dead discards for 2003 will not be available until after the fishing seasons for 2004 have begun or ended. Thus, dead discards from 2003 cannot be used to adjust the catch quota until 2005.

Seasonal Quota Adjustments

Comment 1: NOAA Fisheries should consider staggered closure dates. Closing the fishery early would allow NOAA Fisheries to tally the catch to date and then reopen it if there is quota remaining.
Response: NOAA Fisheries has tried this approach in the past and received numerous complaints from fishermen. Because most shark fishermen are permitted in numerous fisheries, after the shark season is closed, many of them refit their vessels to fish for other species. If NOAA Fisheries then reopens the fishery, fishermen once again need to refit their vessels. Additionally, staggered closure dates with no advanced notice of

when or if the fishery will reopen makes it difficult for fishermen to maintain a market niche. NOAA Fisheries may examine this issue in Amendment 1 to the HMS FMP or in a future rulemaking.
Comment 2: NOAA Fisheries should consider moving the season start date from July 1 to June 1 for better market opportunities during the Forth of July holiday season. Similar consideration should be given to moving the January 1 start date to December 1.
Response: Changing the season start date may have ecological and economic impacts. An analysis of these impacts needs to be fully considered by the public and NOAA Fisheries before implementation. NOAA Fisheries may consider changing season start dates in Amendment 1 to the HMS FMP or in a future rulemaking.

Comment 3: The seasons for ridgeback and non-ridgeback LCS are out of sync with one another and will result in additional discards. NOAA Fisheries should set a single season closure date for both ridgeback and non-ridgeback LCS. This would also help with enforcement of fishing season closures.
Response: The opening and closure dates for ridgeback and non-ridgeback LCS are based in part on catch rates in previous years. When setting the opening and closure dates, NOAA Fisheries also considered the fact that, even though fishermen can target certain species, ridgeback LCS could be discarded during the non-ridgeback LCS season. NOAA Fisheries may consider a single season closure and other options in Amendment 1 to the HMS FMP.

Bycatch and Prohibited Species

Comment 1: NOAA Fisheries should consider time/area closures to protect juvenile sharks.
Response: Time/area closures may have ecological and economic impacts. The impacts of any closures need to be fully considered by the public and NOAA Fisheries before implementation. Additionally, some time/area closures to protect juvenile sharks may require coordination with states. NOAA Fisheries may consider time/area closures as part of Amendment 1 to the HMS FMP.

Comment 2: The LCS fishery should be closed in April to protect pregnant females and pups.
Response: NOAA Fisheries is considering several alternatives to protect pregnant female sharks and pups in Amendment 1 to the HMS FMP. These alternatives include time/area closures, regional quotas, and changing fishing season start dates.

Comment 3: Dusky sharks are of particular concern due to incidental mortality. This mortality will continue as long as there is a directed shark fishery that is unable to selectively fish certain species. NOAA Fisheries should conduct a thorough evaluation and reporting of the incidental mortalities of prohibited and overfished species occurring in the fishery.
Response: NOAA Fisheries believes that many fishermen target certain species of sharks. However, bycatch of other species is inevitable. The latest observer report for

the bottom longline fishery indicates that dusky sharks represent approximately one percent of the total shark catch. In Amendment 1 to the HMS FMP, NOAA Fisheries is considering options to reduce bycatch in the shark fishery.
Comment 4: NOAA Fisheries should reconsider the prohibition of dusky sharks, and several other coastal shark species such as the Atlantic angel, bignose, Caribbean reef, Caribbean sharpnose, and night sharks. NOAA Fisheries should set a bycatch quota of 100,000 pounds dw for bignose sharks.
Response: As noted above, according to the latest observer report for the bottom longline fishery, dusky sharks comprise approximately one percent of the total shark catch. The other species listed are either not observed caught or comprise less than one percent of total shark catch in aggregate. NOAA Fisheries may consider several options to address prohibited species and reduce bycatch as part of Amendment 1 to the HMS FMP.

Comment 5: Dusky, night, and sand tiger sharks are so depleted that they are considered candidates for listing under the Endangered Species Act (ESA). NOAA Fisheries should assess and reduce unintentional bycatch of these species.
Response: NOAA Fisheries will be considering various options in Amendment 1 to the HMS FMP to reduce bycatch, as required by the Magnuson-Stevens Act. NOAA Fisheries recently completed a status review under ESA for dusky sharks and hopes to complete status reviews for night and sand tiger sharks in the near future. The results of the dusky shark status review indicated that recent years have shown an increase in abundance but that catch rates are still much lower than catch rates in the late seventies and early eighties.

Comment 6: NOAA Fisheries should consider slot sizes to protect large females.
Response: NOAA Fisheries is examining several options to reduce bycatch as part of Amendment 1 to the HMS FMP. NOAA Fisheries may consider this option at that time.

General

Comment 1: State regulations should mirror federal regulations, particularly with regard to closures.
Response: NOAA Fisheries agrees and will work with states during and after the amendment process in order to reach this goal.

Comment 2: The emergency rule sidestepped the process of giving the public an opportunity to comment on management decisions.

Response: NOAA Fisheries agrees that the public should be given every opportunity to comment on management decisions. The current emergency rule was necessary because, once the December 2001 emergency rule expired, certain measures from the 1999 HMS FMP, which were no longer based on the best available science, would have gone into place unless regulations were promulgated to replace them. While prior notice and comment were impracticable in this case, NOAA Fisheries held four public hearings

on the emergency rule, received comments from the HMS Advisory Panel members at a February 2003 meeting, and gathered significant public input which was considered in the decision to extend the emergency rule.
Comment 3: NOAA Fisheries should not have proceeded with new quotas before peer reviews were complete. The peer reviews did not endorse raising the LCS quota.
Response: The peer review process, per the settlement agreement with the commercial industry, was not complete until mid-December 2002. If NOAA Fisheries had waited for the peer reviews before moving forward with a rule, the commercial regulations in the HMS FMP would have gone into place, contrary to National Standard 2 of the Magnuson-Stevens Act. Those regulations in the HMS FMP could have caused substantial harm to the fishing industry. NOAA Fisheries did consider the peer reviews of the 2002 LCS stock assessment once they were available and found that they were generally positive and supported the 2002 LCS stock assessment. Additionally, the peer reviews themselves were not intended to endorse quota recommendations, but rather to provide an unbiased review of methodology and appropriateness of stock assessment models and interpretation of those models. All peer reviews concluded that the models and methodology used were appropriate. Had the peer reviews been negative or concluded that models were inappropriate, NOAA Fisheries would have acted immediately to revise the emergency rule.

Comment 4: The Advisory Panel should have been consulted on the emergency rule.
Response: NOAA Fisheries makes every effort to consult the Advisory Panel prior to issuing FMP amendments or major and/or controversial rules. As described above, the Advisory Panel did provide comments during the comment period on the emergency rule. Additionally, NOAA Fisheries is in the process of developing Amendment 1 to the HMS FMP that will take into consideration the comments and opinions of the Advisory Panel, stakeholders, conservationists and the public.

Comment 5: NOAA Fisheries should report which states are allowing shark landings after federal closures and the magnitude of these landings for each state.
Response: NOAA Fisheries provided a summary of this information at the Advisory Panel meeting and plans to make it available in Amendment 1 to the HMS FMP.

Comment 6: NOAA Fisheries should implement minimum size limits for recreational fishermen.
Response: NOAA Fisheries currently has a minimum size limit for recreational shark fishermen. Except for Atlantic sharpnose, recreational fishermen are authorized to keep one shark per vessel per trip larger than 4.5 feet fork length. There is no minimum size for Atlantic sharpnose sharks. NOAA Fisheries may consider other minimum size requirements for recreational fishermen in Amendment 1 to the HMS FMP.

Comment 7: Based on the improved stock picture provided by the 2002 SCS assessment, NOAA Fisheries should consider increasing the recreational bag and size limits for SCS. Recreational fishermen have been unfairly penalized by LCS and SCS assessments in the past.

Response: NOAA Fisheries is examining several options for recreational fishing as part of Amendment 1 to the HMS FMP. NOAA Fisheries may consider this option at that time.

Comment 8: Vessel upgrading restrictions are a safety concern. The current management regime forces smaller boats to fish further offshore in adverse conditions.
Response: Vessel upgrading restrictions were implemented to control excess fishing capacity in the shark fishery. NOAA Fisheries believes that announcing the duration of the shark fishing season ahead of time should allow fishermen to avoid fishing under adverse conditions. NOAA Fisheries is considering an amendment to some of the limited access regulations and will consider this issue in that process.

Comment 9: NOAA Fisheries should leave a quota for incidental catch.
Response: NOAA Fisheries is considering several quota alternatives in Amendment 1 to the HMS FMP and may consider this comment in that or in another rulemaking.

Comment 10: Harvesting sharks for meat or cartilage is completely unnecessary.
Response: NOAA Fisheries disagrees. Sharks are a fishery resource that contributes to the food supply, economy, and health of the Nation as described in the Magnuson-Stevens Act.

Comment 11: NOAA Fisheries should educate the public about sharks and their behavior to dispel the "Jaws" misconception. Sharks are much more economically valuable alive than dead.
Response: NOAA Fisheries agrees that there are misconceptions about sharks and has made efforts to educate the public through various media including the internet. For instance, in early 2002, NOAA Fisheries announced the availability of a website devoted exclusively to shark education at http://www.NOAA Fisheries.noaa.gov/sharks/ and will soon release an identification guide for all HMS including sharks. NOAA Fisheries agrees that sharks are economically valuable, both as a harvested resource, and as an component of the marine environment that user groups, such as scuba divers, may wish to observe in the wild. NOAA Fisheries believes that the sustainable harvest of sharks will not prevent segments of the population who derive economic benefit from sharks living in the wild or in public display facilities to continue doing so.

Comment 12: Sharks are top predators in the marine food chain and harvesting them will disrupt the food web.
Response: NOAA Fisheries agrees that sharks are an important component of the marine environment and current regulations are designed to promote a sustainable fishery. Through sound conservation and management, NOAA Fisheries believes that shark populations can be rebuilt and that the ocean's food web will not be disrupted.

Comment 13: NOAA Fisheries should lobby Asians to stop shark finning.
Response: NOAA Fisheries cannot regulate fishing vessels from other countries. However, the Shark Finning Prohibition Act which was passed on December 21, 2000,

and implemented on February 2, 2002 (67 FR 6194), prevents any person subject to U.S. jurisdiction from engaging in shark finning (finning is the practice of removing the fin or fins from a shark and discarding the remainder of the shark). Additionally, the Shark Finning Prohibition Act requires the United States to initiate discussions with other nations regarding the prohibition on shark finning. NOAA Fisheries has been working with other countries in regard to this. By becoming a signatory nation to the United Nations Food and Agriculture Organization's International Plan of Action on Sharks, the United States has agreed that shark conservation is a concern, both domestically and internationally. The United States has also agreed that all nations and international fishery organizations should take action to ensure that shark populations are monitored, and fishery conservation measures are implemented, to protect sharks from over-exploitation.

Comment 14: Sharks are going extinct.
Response: While some sharks species are overfished, NOAA Fisheries does not believe they are going extinct. To the contrary, the most recent LCS and SCS stock assessments indicate that several of the most heavily exploited species are no longer overfished and that others are showing positive signs of recovery. Species that are of particular concern are on the candidate species list for listing under ESA, or are on the prohibited species list. However, no species are listed under the ESA at this time.

Comment 15: Sharks may be an important cure for cancer.
Response: NOAA Fisheries agrees that sharks may be important in our search for cures to certain diseases, and NOAA Fisheries fully supports further research in this area.

APPENDIX 2

THE ORIGINAL ENVIRONMENTAL ASSESSMENT